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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,090	02/20/2004	Henry W. Bonk	402200003DVC	6886
27572	7590	07/12/2005	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			AUGHENBAUGH, WALTER	
			ART UNIT	PAPER NUMBER
			1772	
DATE MAILED: 07/12/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/784,090

Applicant(s)

BONK ET AL.

Examiner

Walter B. Aughenbaugh

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/21/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 6,599,597 to Bonk et al. in view of U.S. Patent No. 5,036,110 to Moureaux and in further view of U.S. Patent No. 5,925,054 to Taylor et al.

Claim 1 of Bonk et al. recites a gas-filled cushioning device comprising a multilayer film formed into a gas-filled membrane having an interior compartment containing at least one capture gas constituent (see "said barrier membrane is sealed and is inflated with a gas" at lines 9-10 of claim 1) where the multilayer film includes a first layer comprising a combination of at least one aliphatic thermoplastic urethane and a copolymer of ethylene and vinyl alcohol wherein the first layer includes up to about 50 wt. % aliphatic thermoplastic urethane. Claim 1 of Bonk et al. recites a second layer that includes a thermoplastic urethane.

Claim 1 of Bonk et al. does not explicitly recite that the thermoplastic urethane of the second layer is a flexible resilient elastomeric thermoplastic material or that the multilayer film

Art Unit: 1772

of Moureaux is capable of selectively resisting an outward diffusion of the capture gas constituent and capable of permitting an inward diffusion pumping of at least one mobile gas constituent.

Moureaux teaches a gas-filled device (membrane, col. 1, lines 6-7, col. 3, lines 26-27 and Fig. 2) comprising a multilayer film (col. 6, lines 10-17) formed into a gas-filled membrane having an interior compartment containing at least one capture gas constituent (col. 1, lines 6-15, col. 3, lines 26-27 and Fig. 2). Moureaux teaches that the multilayer film includes a first layer (item 2) comprising a combination of a thermoplastic urethane and a copolymer of ethylene and vinyl alcohol (col. 6, lines 10-17, col. 4, lines 5-10, col. 3, lines 28-36 and 40-44 and col. 3, line 67-col. 4, line 4). Moureaux teaches that the multilayer film includes a second, outer layer (item 3, col. 6, lines 10-17) that comprises blend of thermoplastic polyurethane and a block amide polyether (PEBA) (col. 6, lines 48-52, col. 3, lines 31-37 and col. 3, line 68-col. 4, line 4), which is a flexible resilient elastomeric thermoplastic material, as evidenced by US 5,925,054 to Taylor et al. at col. 4, lines 15-19. Since Moureaux teaches that the membrane is impervious to gases (col. 1, lines 50-55) and that the second material, which is responsible for the enhanced imperviousness of the membrane, of Moureaux is selected from a particular group of polymers, which includes the copolymer of ethylene and vinyl alcohol (col. 1, line 66-col. 2, line 2), the multilayer film of Moureaux is capable of selectively resisting an outward diffusion of the capture gas constituent. Since Moureaux teaches that the membrane should allow a good transmission of pressures between the two compartments of the device (col. 1, lines 25-30), the multilayer film of Moureaux is capable of permitting an inward diffusion pumping of at least one

Art Unit: 1772

mobile gas constituent (pressure is transmitted into a compartment by increasing the amount of gas in that compartment).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the blend of thermoplastic polyurethane and a block amide polyether (PEBA) of Moureaux as the thermoplastic polyurethane of Bonk et al. since a blend of thermoplastic polyurethane and a block amide polyether (PEBA) is a well known flexible resilient elastomeric thermoplastic material as taught by Taylor et al. Furthermore, it would have been obvious to one of ordinary skill in the art at the time the invention was made that the copolymer of ethylene and vinyl alcohol of Bonk et al. is responsible for the enhanced imperviousness of the membrane as taught by Moureaux, and therefore that the multilayer film of Bonk et al. is capable of selectively resisting an outward diffusion of the capture gas constituent. Furthermore, since the membrane recited in claim 1 of Bonk et al. allows a certain amount of gas permeation, as indicated by the recited gas transmission rate, the multilayer film of Bonk et al. is capable of permitting an inward diffusion pumping of at least one mobile gas constituent.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In regard to claim 4, the recitations “between about 0.5 mils to about 10 mils” and “between about 5 mils to about 100 mils” render the claim indefinite since the ranges

Art Unit: 1772

Applicant intends to recite cannot be ascertained. If Applicant intends to recite a range of from about X to about Y, the language should read “between about X and about Y”, not “about X to about Y”. Claim 5 recites the limitation "said capture gas" in the first to second lines of the claim; there is insufficient antecedent basis for this limitation in the claim. Claim 5 should recite “said capture gas constituent”.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5, 6, 9 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Moureaux.

In regard to claim 1, Moureaux teaches a gas-filled device (membrane, col. 1, lines 6-7, col. 3, lines 26-27 and Fig. 2) comprising a multilayer film (col. 6, lines 10-17) formed into a gas-filled membrane having an interior compartment containing at least one capture gas constituent (col. 1, lines 6-15, col. 3, lines 26-27 and Fig. 2). Moureaux teaches that the multilayer film includes a first layer (item 2) comprising a combination of a thermoplastic urethane and a copolymer of ethylene and vinyl alcohol (col. 6, lines 10-17, col. 4, lines 5-10, col. 3, lines 28-36 and 40-44 and col. 3, line 67-col. 4, line 4). Aliphatic thermoplastic urethanes fall within the scope of the teaching of Moureaux of thermoplastic urethanes. Moureaux teaches that the first layer includes 50 to 95% copolymer of ethylene and vinyl alcohol (col. 2, lines 36-39 and col. 4, lines 5-10), and therefore, 5 to 50% thermoplastic urethane, and therefore, up to

Art Unit: 1772

about 50 wt. % thermoplastic urethane. Moureaux teaches that the multilayer film includes a second, outer layer (item 3, col. 6, lines 10-17) that comprises a block amide polyether (PEBA) (col. 6, lines 48-52 and col. 3, lines 31-37), which is a flexible resilient elastomeric thermoplastic material, as evidenced by US 5,925,054 to Taylor et al. at col. 4, lines 15-19 and by US 4,717,618 to Tse et al. in the first two lines under the "OTHER PUBLICATIONS" heading in the right column of the cover page of Tse et al. Since Moureaux teaches that the membrane is impervious to gases (col. 1, lines 50-55) and that the second material of Moureaux is selected from a particular group of polymers, which includes the copolymer of ethylene and vinyl alcohol (col. 1, line 66-col. 2, line 2), the multilayer film of Moureaux is capable of selectively resisting an outward diffusion of the capture gas constituent. Since Moureaux teaches that the membrane should allow a good transmission of pressures between the two compartments of the device (col. 1, lines 25-30), the multilayer film of Moureaux is capable of permitting an inward diffusion pumping of at least one mobile gas constituent (pressure is transmitted into a compartment by increasing the amount of gas in that compartment). Note that it has been held that the recitation that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. *In re Hutchinson*, 69 USPQ 138. The recitation "cushioning" is an intended use recitation that has not been given patentable weight, since it has been held that a recitation with respect to the manner in which a claimed article is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQd 1647 (1987).

In regard to claim 2, Moureaux teaches that the first layer includes 50 to 95% copolymer of ethylene and vinyl alcohol (col. 2, lines 36-39 and col. 4, lines 5-10), and therefore, 5 to 50%

Art Unit: 1772

aliphatic thermoplastic urethane, a range that overlaps with the claimed range of about 1 wt. % to about 30 wt. % aliphatic thermoplastic urethane.

In regard to claim 3, Moureaux teaches that the second layer includes a mixture of a thermoplastic urethane and a block amide polyether (PEBA) (col. 3, line 67-col. 4, line 3 and col. 6, lines 48-52); therefore, the second layer of Moureaux comprises a thermoplastic urethane that is a polyether-based and a polycaprolactone-based material (polyamide is a polycaprolactone-based material).

In regard to claim 5, Moureaux teaches that the capture gas is nitrogen (col. 1, lines 12-15 and 26-30).

In regard to claim 6, Moureaux teaches that the first layer includes 50 to 95% copolymer of ethylene and vinyl alcohol (col. 2, lines 36-39 and col. 4, lines 5-10), and therefore, 5 to 50% aliphatic thermoplastic urethane, a range that encompasses the claimed range of about 5 wt. % to about 25 wt. % aliphatic thermoplastic urethane.

In regard to claim 9, Moureaux teaches that the first layer includes 50 to 95% copolymer of ethylene and vinyl alcohol (col. 2, lines 36-39 and col. 4, lines 5-10), a range that falls within the claimed range of 50 wt. % to about 97 wt. %, and therefore, 5 to 50% aliphatic thermoplastic urethane, a range that overlaps with the claimed range of 3 wt. % to about 50 wt. % aliphatic thermoplastic urethane. The “up to about 3 wt. % of one or more aromatic thermoplastic urethanes” recitation is an optional recitation due to the “up to about 3 wt. %” recitation.

In regard to claim 10, Moureaux teaches that the device comprises a third layer (col. 6, lines 10-17 and Fig. 2) and that the third layer includes a mixture of a thermoplastic urethane and a block amide polyether (PEBA) (col. 3, line 67-col. 4, line 3 and col. 6, lines 48-52); therefore,

Art Unit: 1772

the third layer of Moureaux comprises a thermoplastic urethane that is a polyether-based and a polycaprolactone-based material (polyamide is a polycaprolactone-based material).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moureaux.

Moureaux teaches the gas-filled device as discussed above. Moureaux teaches that the film, item 2 (that corresponds to the first layer as claimed by Applicant), has a thickness of 10-200 microns (col. 6, lines 10-17), a range which overlaps with the claimed range of about 0.5 to about 10 mils (which is equivalent to a range of about 12.7 to about 254 microns). Moureaux fails to teach that the second layer (outer layer, item 3, Fig. 2) has an average thickness of between about 5 mils and 100 mils (which is equivalent to a range of 127 to 2540 microns). Fig. 2 of Moureaux, however, shows that the average thickness of the outer layer, item 3, is substantially larger than the thickness of the film, item 2. Since Moureaux teach that the material

Art Unit: 1772

of the outer layer, item 3, is a flexible material (col. 6, lines 48-52 and col. 1, lines 62-66), one of ordinary skill in the art would have recognized to have varied the thickness of the outer layer, item 3, such that it is, for instance, 2540 microns (equivalently, 100 mils) or 1270 microns (equivalently, 50 mils) in order to achieve the desired flexibility of the membrane depending upon the particular desired end result, in the absence of a persuasive showing of unexpected results.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moureaux in view of Matsumoto et al.

Moureaux teaches the gas-filled device as discussed above. Moureaux fails to teach that the copolymer is selected from the group consisting of copolymers including an ethylene content of between about 25 mol. % to about 48 mol. %. Matsumoto et al., however, disclose a laminate comprising a layer of a flexible blend of a thermoplastic polyurethane elastomer and an ethylene vinyl alcohol copolymer (col. 2, lines 9-21, col. 1, lines 10-12 and col. 6, lines 56-60) where the ethylene vinyl alcohol copolymer comprises 31 mole % ethylene (col. 21, lines 57-62). Since Moureaux teach that the required elasticity (i.e. flexibility) is achieved due to, for instance, (col. 1, lines 62-66 of Moureaux), one of ordinary skill in the art would have recognized to have used the ethylene vinyl alcohol copolymer taught by Matsumoto et al. as the ethylene vinyl alcohol copolymer of Moureaux since an ethylene vinyl alcohol copolymer that comprises 31 mole % ethylene is well known to form a flexible blend of a thermoplastic polyurethane elastomer and an ethylene vinyl alcohol copolymer as taught by Matsumoto et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the ethylene vinyl alcohol copolymer taught by Matsumoto et al. as the

Art Unit: 1772

ethylene vinyl alcohol copolymer of Moureaux since an ethylene vinyl alcohol copolymer that comprises 31 mole % ethylene is well known to form a flexible blend of a thermoplastic polyurethane elastomer and an ethylene vinyl alcohol copolymer as taught by Matsumoto et al.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moureaux in view of Smith et al.

Moureaux teaches the gas-filled device as discussed above. Moureaux fails to teach that the first layer also includes an aromatic thermoplastic urethane. Smith et al., however disclose a multilayered sheeting comprising a body layer that comprises a low elastic modulus polymer for easy bending and flexing (col. 3, lines 30-32 and col. 8, lines 13-15). Smith et al. disclose that a suitable composition for the body layer is a combination of aliphatic and aromatic polyurethanes (col. 8, lines 27-29 and 58-68 and col. 9, lines 4-5). Since Moureaux teach that the required elasticity (i.e. flexibility) is achieved due to, for instance, (col. 1, lines 62-66 of Moureaux), one of ordinary skill in the art would have recognized to have used the combination of aliphatic and aromatic polyurethanes taught by Smith et al. as the first material of the film, item 2 (that corresponds to the first layer as claimed by Applicant), since the combination of aliphatic and aromatic polyurethanes taught by Smith et al. is a well known flexible (low elastic modulus) material for a film that bends and flexes easily (i.e. that is flexible) as taught by Smith et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the combination of aliphatic and aromatic polyurethanes taught by Smith et al. as the first material of the film, item 2 (that corresponds to the first layer as claimed by Applicant), since the combination of aliphatic and aromatic polyurethanes taught by Smith et al.

Art Unit: 1772

is a well known flexible (low elastic modulus) material for a film that bends and flexes easily (i.e. that is flexible) as taught by Smith et al.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 571-272-1488. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Walter B. Aughenbaugh

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HAROLD PYON
SUPERVISORY PATENT EXAMINER

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